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D206-667-103TRN
Job Sheet 202588



Part No: D206-667-103TRN Job Qty: 1 pcs
Part Name: Crosstube Turning Detail

Part Weight: 0 lbs Status: New Priority: Medium
Job Created: 10/30/19 Job Tracking No:
Due Date: 11/13/19 Created By: Marie Lajeunesse
Type: Stock Description:
Note: ~~DWG REV C~~ IPP Rev:A 08-03-06 new issue DD verified by:ec IPP Rev B 08.04.02 removed polish EC verified by DD
Ship Via: DWG Rev. D

DAS
35
9-89

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Lead Time	Sign-off
					Setup Hrs	Run Hrs	Workcenter / Supplier			
100	Mori Seiki TL-40 - 1	1 pcs		11/13/19	1.00	2.10	Mori Seiki TL-40 - 1			DAS 66 2019/11/1 9-89
110	QC 2	1 pcs		11/13/19	0.00	0.00	QC 2 - 1			
							QC 2 - 12			
							QC 2 - 14			
							QC 2 - 17			
							QC 2 - 19			
							QC 2 - 2			
							QC 2 - 20			
							QC 2 - 22			
							QC 2 - 23			
							QC 2 - 25			
							QC 2 - 32			
							QC 2 - 33			
							QC 2 - 35			
							QC 2 - 39			
							QC 2 - 4			
							QC 2 - 40			
							QC 2 - 44			
							QC 2 - 45			
							QC 2 - 48			
							QC 2 - 49			
							QC 2 - 50			
							QC 2 - 51			
							QC 2 - 52			
							QC 2 - 57			
							QC 2 - 62			
							QC 2 - 63			
							QC 2 - 8			
							QC 2 - 66			DAS 66 2019/11/1 9-89
							QC 2 - 64			

				QC 2 - 65	
				QC 2 - 5	
				QC 2 - 71	
				QC 2 - 73	
				QC 2 - 69	
120	Mori Seiki TL-40 - 1 - B4B	1 pcs	11/13/19	1.00 2.10	Mori Seiki TL-40 - 1 - B4B
130	QC 2	1 pcs	11/13/19	0.00 0.00	QC 2 - 1
					QC 2 - 12
					QC 2 - 14
					QC 2 - 17
					QC 2 - 19
					QC 2 - 2
					QC 2 - 20
					QC 2 - 22
					QC 2 - 23
					QC 2 - 25
					QC 2 - 32
					QC 2 - 33
					QC 2 - 35
					QC 2 - 39
					QC 2 - 4
					QC 2 - 40
					QC 2 - 44
					QC 2 - 45
					QC 2 - 48
					QC 2 - 49
					QC 2 - 50
					QC 2 - 51
					QC 2 - 52
					QC 2 - 57
					QC 2 - 62
					QC 2 - 63
					QC 2 - 8
					QC 2 - 66
					QC 2 - 64
					QC 2 - 65
					QC 2 - 5
					QC 2 - 71
					QC 2 - 73
					QC 2 - 69
140	QC 8	1 pcs	11/13/19	0.00 0.00	QC 8 - 12
					QC 8 - 14
					QC 8 - 17
					QC 8 - 20
					QC 8 - 25
					QC 8 - 3
					QC 8 - 32
					QC 8 - 33
					QC 8 - 35
					QC 8 - 39
					QC 8 - 4
					QC 8 - 44
					QC 8 - 45
					QC 8 - 49
					QC 8 - 58
					QC 8 - 8
					QC 8 - 9
					QC 8 - 68

DAS
66 2019/11/04
9-89

DAS
66 2019/11/04
9-89

				QC 8 - 67	
				QC 8 - 1 (A)	
				QC 8 - 47	
				QC 8 - 40	
				QC 8 - 52	
				QC 8 - 23	
				QC 8 - 57	DAS 76 9-89
				QC 8 - 76	
				QC 8 - 61	
145 Crosstubes - 2 - B4B	1 pcs	11/13/19	0.00 0.59	Crosstubes - 1 - B4B	
				Crosstubes - 2 - B4B	B3 11/22/2019
				Crosstubes - 3 - B4B	
				Crosstubes - 4 - B4B	
150 Handfinish - 1-1 Chemical-B4B	1 pcs	11/13/19	0.00 1.00	Handfinish - 1 - 1 - B4B	
				Handfinish - 1 - 2 - B4B	
				Handfinish - 1 - 3 - B4B	★ NOV 26 2019
				Handfinish - 1 - 4 - B4B	
				Handfinish - 1 - 5 - B4B	
				Handfinish - 1 - 6 - B4B	
				Handfinish - 1 - 7 - B4B	
				Handfinish - 1 - 8 - B4B	
				Handfinish - 1 - 9 - B4B	
				Handfinish - 1 - 10 - B4B	
				Handfinish - 1 - 11 - B4B	
				Handfinish - 1 - 12 - B4B	
				Handfinish - 1 - 13 - B4B	
				Handfinish - 1 - 14 - B4B	
				Handfinish - 1 - 15 - B4B	
				Handfinish - 1 - 16 - B4B	
				Handfinish - 1 - 17 - B4B	
				Handfinish - 1 - 18 - B4B	
				Handfinish - 1 - 19 - B4B	
				Handfinish - 1 - 20 - B4B	
				Handfinish - 1 - 21 - B4B	
				Handfinish - 1 - 22 - B4B	
160 QC 7	1 pcs	11/13/19	0.00 0.00	QC 7 - 10	
				QC 7 - 13	
				QC 7 - 14	
				QC 7 - 15	
				QC 7 - 17	
				QC 7 - 18	
				QC 7 - 19	
				QC 7 - 2	
				QC 7 - 28	
				QC 7 - 3	
				QC 7 - 30	
				QC 7 - 34	
				QC 7 - 36	

				QC 7 - 37	
				QC 7 - 41	
				QC 7 - 47	
				QC 7 - 48	
				QC 7 - 51	
				QC 7 - 58	
				QC 7 - 59	
				QC 7 - 60	
				QC 7 - 9	
				QC 7 - 68	
				QC 7 - 50	
				QC 7 - 67	
				QC 7 - 40	
				QC 7 - 24	
				QC 7 - 43	
				QC 7 - 61	
				QC 7 - 81	DAS 76 9-89
				QC 7 - 76	
				QC 7 - 79	
170 Packaging 3-1 - Stock - B4B	1 pcs	11/13/19	0.00 0.00	Packaging 3 - 1 - B4B	
				Packaging 3 - 2 - B4B	
				Packaging 3 - 3 - B4B	
				Packaging 3 - 4 - B4B	
				Packaging 3 - 5 - B4B	
				Packaging 3 - 6 - B4B	
				Packaging 3 - 7 - B4B	
				Packaging 3 - 8 - B4B	
				Packaging 3 - 9 - B4B	
				Packaging 3 - 10 - B4B	
				Packaging 3 - 11 - B4B	
				Packaging 3 - 12 - B4B	
				Packaging 3 - 13 - B4B	
				Packaging 3 - 14 - B4B	
				Packaging 3 - 15 - B4B	
				Packaging 3 - 16 - B4B	
				Packaging 3 - 17 - B4B	
				Packaging 3 - 18 - B4B	
				Packaging 3 - 19 - B4B	
				Packaging 3 - 20 - B4B	
				Packaging 3 - 21 - B4B	
				Packaging 3 - 22 - B4B	
				Packaging 3 - 23 - B4B	
				Packaging 3 - 24 - B4B	BIS 11/26/2019
				Packaging 3 - 25 - B4B	
				Packaging 3 - 26 - B4B	
				Packaging 3 - 27 - B4B	
				Packaging 3 - 28 - B4B	
				Packaging 3 - 29 - B4B	
				Packaging 3 - 30 - B4B	
				Packaging 3 - 31 - B4B	
				Packaging 3 - 32 - B4B	
				Packaging 3 - 33 - B4B	
				Packaging 3 - 34 - B4B	
				Packaging 3 - 35 - B4B	
				Packaging 3 - 36 - B4B	
180 QC 21 - SA	1 pcs	11/13/19	0.00 0.00	QC 21 - SA - 21	DAS 21 3-89 NOV 26 2019
				QC 21 - SA - 70	
				QC 21 - SA - 53	

Part Op 100 - Mori Seiki TL-40 (Mori Seiki CNC Lathe Large) 1-Fill tube with sand & install plugs DT8534 on both ends as per

Descriptions: Folio FA087 2-Turn first side as per Folio FA087 3-Blend transition lines only, **do not sand whole tube**: FOLIO REV: 1 DWG REV: 1 *Use mill bastard file, brush file repeatedly with file card. *Do not use sandpaper coarser than 320 grit.
110 - QC2-1 (QC2- Inspect parts off machine FAI/FAIB) QC2- Inspect parts off machine FAI/FAIB
120 - Mori Seiki TL-40 (Mori Seiki CNC Lathe Large) 1-Turn second side as per Folio FA087 2-File down transition lines smooth. 3-Blend transition lines only, **do not sand whole tube**: *Use mill bastard file, brush file repeatedly with file card.
FOLIO REV: 1 DWG REV: 1 *Do not use sandpaper coarser than 320 grit.
130 - QC2-1 (QC2- Inspect parts off machine FAI/FAIB) QC2- Inspect parts off machine FAI/FAIB
140 - QC8 (QC8- Inspect parts - second check) QC8- Inspect parts - second check
145 - Crosstubes-1 (Crosstubes) GRIND ONLY TRANSITION LINES SMOOTH LONGITUDE WAY.
150 - Crosstubes-3 (Crosstubes) 1- PRESSURE WASH X-TUBE INSIDE AND OUT 2- ALODINE AND ACID ETCH X-TUBE INSIDE AND OUT. USE RED SCOTCH BRITE
160 - QC7-1 (QC7-Inspect Chemical Conversion Coat) QC7-Inspect Chemical Conversion Coat
170 - Identify and stock in kanban rack Location: _____
180 - QC21 (QC21- Final Inspection - Work Order Release) QC21- Final Inspection - Work Order Release

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D6002-115	Crosstube Material	1 pcs (1 ea)	100-Mori Seiki TL-40 - 1	E129961

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
100-Mori Seiki TL-40 - 1	D6002-115	1	64	0

Part Specifications

Specifications could not be found.

Plex 10/30/19 1:41 PM Dart.lajeunesse.marie



Container No: S228907



Part: D206-667-103TRN

Job No: 202588

Serial No/Batch: S228907

Revision: D

Inspector:

Exp Date:

Instructions:

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
CANADA
TEL.: 1 813 632-5200
Email: sales@dartaero.com
www.dartaero.com

Date: 11/01/19

③

DART AEROSPACE LTD		Work Order:	202588
Description: Crosstube Assembly (206L High Fwd) ^{DAS}		Part Number:	D206-667-143
Inspection Dwg: D206-667-143 Rev: ³⁵ 3 ₉₋₈₉		Page 1 of 2	

FIRST ARTICLE INSPECTION CHECKLIST

Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.240	+0.005/-0.000	2.243	✓		CNC-04
	1.982	+0.005/-0.000	1.987	✓		CNC-08
	2.019	+0.005/-0.000	2.024	✓		CNC-04
	2.058	+0.005/-0.000	2.063	✓	↓	
	2.097	+0.005/-0.000	2.102	✓		
	2.136	+0.005/-0.000	2.139	✓		
	2.176	+0.005/-0.000	2.180	✓		
	2.201	+0.005/-0.000	2.206	✓		
	0.125	+/-0.010	.120	✓		CNC-08
	0.400 x 30°	+/-0.010	.400	✓		"
	R0.063	+/-0.010	.063	✓		RG
	R0.500	+/-0.010	.500	✓		"
	4.438	+/-0.030	4.435	✓		CNC-08
SIDE B	104.98	+/-0.020	104.990	✓		Tape
	2.240	+0.005/-0.000	2.242	✓		CNC-04
	1.982	+0.005/-0.000	1.987	✓		CNC-08
	2.019	+0.005/-0.000	2.024	✓		CNC-04
	2.058	+0.005/-0.000	2.063	✓	↓	
	2.097	+0.005/-0.000	2.102	✓		
	2.136	+0.005/-0.000	2.139	✓		
	2.176	+0.005/-0.000	2.181	✓		
	2.201	+0.005/-0.000	2.206	✓		
	0.125	+/-0.010	.126	✓		CNC-08
	0.400 x 30°	+/-0.010	.400	✓		"
	R0.063	+/-0.010	.063	✓		RG
	R0.500	+/-0.010	.500	✓		"
	4.438	+/-0.030	4.441	✓		CNC-08

Item	Qty	Part Number	Description
	-143		
1	X	D208-867-143	CROSSTUBE ASSEMBLY (208L HIGH FWD)
2	1	D6002-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2881-1	SUPPORT
6	4	D3585-083-395	RUBBER CUSHION
7	4	MS21920-20	CLAMP (OR MS21920-21)
8	14	MS20801A04W8	RIVET (OR NAS9302B-4-8)
9	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2
10	2	AN742D38	CLAMP
11	2	MS9185-05	ANGLE BRACKET
12	2	MS21042L3	NUT (OR MS21042-3)
13	2	MS27036-1-08	SCREW
14	4	NAS1148C0332R	WASHER (OR AN880C10L)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6002-115
FINISHED LENGTH = 104.98±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D208-867-143" AND BATCH NUMBER ON INSIDE OF CLIFF USING VIBRATING STYLUS.
- 7) WEIGHT: 13.5 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 10 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI D38.
- 12) TO INSTALL D2891-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 13) INSTALL MS21920-20 CLAMPS (OR -21) WITH D3585-083-395 RUBBER CUSHIONS TO SECURE THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TIGHTENING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.
- 16) MASK AREA UNDER CLAMP PRIOR TO PAINTING.
- 17) SEAL EDGES WHERE AN742D38 CLAMP MEETS WITH THE CROSSTUBE USING SIKAFLEX-241/-281 OR MIL-S-8802 CLASS B2 OR PROSEAL 890 SEALANT.
- 18) PERFORM RESISTANCE CHECK TO ENSURE MAX RESISTANCE IS 10 MILLIONHMS.

RELEASED

2018 SEP 06
ECN 14-77

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SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 101588 M15

191030

D	REVISE SHEET 2 ASSEMBLY DETAIL. HOLE PATTERN PER CARI-824. UPDATE PARTS LIST AND GENERAL NOTES 12 & 15 TO INCORPORATE DED C-1. ADD ITEMS 10-14 TO PARTS LIST. ADD GENERAL NOTES 14-18 AND ADD SHEET 5 TO INCORPORATE DED C-2.	JMH	18.05.01
C	REVISE GENERAL NOTES/PART LIST (2X DT-1): 1) CROSSTUBE PARTS AND REFORMATTED DRAWING TO CURRENT STANDARD. 2) DEDS-403-395 WAS DEDS-400-894 (2X DS-2 & AS-2). 3) REMOVED REF. A. ADD TOLERANCE (2X DS-3, C-3, C5-3). 4) RELOCATED FLAG #8 (2X AS-3) PER MCR 210. MOVED TURNING DETAIL A. UPDATED TOLERANCE TO SHEET A.	RF	08.11.06
B	ADD HOLES AND NUT PLATES FOR COMPATIBILITY WITH BHTAA STRUCTURES	PH	05.07.26
A	NEW ISSUE	CP	00.11.17
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN	JMH		
CHECKED	2F		
INFO. APPR.	AFS	DRAWING NO.	REV. D
APPROVED	1/0	D208-867-143	SHEET 1 OF 5
DATE	18.05.01	TITLE	SCALE
		CROSSTUBE ASSY (208L HIGH FWD)	NTS
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DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA



2018 SEP 06 4

Entered: _____ Date: _____

WORK ORDER NON-CONFORMANCE / ROUTE UPDATE



Route update only ☐

NCR No. _____

Job: _____ Part No. _____		DISPOSITION ☐ Rework ☐ Scrap ☐ Use-as-is		DEPARTMENT/PROCESS Skid-tube Machining Large Fab ☐☐☐ ☐☐☐ ☐☐☐ Cross tube Small Fab Finishing ☐☐☐ ☐☐☐ ☐☐☐ Eng. (Non-AW) Prod. Eng. Coord. Rec/Store/Packaging ☐☐☐ ☐☐☐ ☐☐☐ Engineering Water Jet Supplier Quality ☐☐☐ ☐☐☐ ☐☐☐	
Date :	Sequence #:	QTY Affected :		MRR (QSI042)	
Description Work Order Deviation		Disposition			
Root Cause ☐ Operator ☐ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Preservation ☐ Material ☐ Product Improvement ☐ Process Improvement ☐ Human Factors		FAULT CATEGORY ☐ Contamination Misaligned/off center BOM/Route Broken/Damage/Defect Incomplete/Unclear Instructions Drill Holes Fit/Function ☐ Pressure/Forced Bending Crushing Cracks Crimp/Kink/Ripple/Wave/Twist Marks/Chatter Mislabeled Other/Details: ☐ Power Loss/Surge Folio/Program Grain Direction Weld Wrong Stock Pulled Out of Sequence Off-set/Set-up ☐ Positioned Wrong Outside Tolerance Drawing Finish Part Lost/Missing Misread			
Completed By		Lead hand / Supervisor			
QC / QA Coordinator					